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ABSTRACT

This study examines retention rates in Dade County (Florida) schools, using aggregate statistical data for the school years 1982-83 through 1988-89 to describe existing patterns and changes over time. An earlier study established commonalities of pattern across grades, over great disparities of circumstances, and across time. The following findings are presented: (1) patterns of retention rate shift were influenced by student socioeconomic status (SES) and structural variables, and by stricter standard policies stemming from reform legislation of the late 1970s and early 1980s; (2) definite patterns of retention rate shift were associated with the school district's reorganization from a junior high school model to a middle school model; and (3) other patterns appeared to be affected by annual state performance testing practices and by other state education reform legislation intended to toughen graduation standards. Statistical data are presented in one table and 10 graphs. Policymakers are cautioned against rapid, unexpected negative trends in retention rates resulting from well-meaning reforms. A list of eight notes and seven references is appended. (FMW)

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STRUCTURAL PATTERNS AND CHANGE IN GRADE RETENTION RATES: AN AGGREGATE ANALYSIS OF DATA FROM A LARGE URBAN SCHOOL DISTRICT, 1982-1989

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Dade County Public Schools

Prepared for the
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Conference in
Chicago, Illinois

April, 1991

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Structural Patterns and Change in Grade Retention Rates: An Aggregate Analysis of Data from a Large Urban School District, 1982-1989

Don R. Morris
Dade County Public Schools

This study examines retention rates in a large urban southeastern school district, using aggregate data for the school-years 1982-83 through 1988-89 to describe existing patterns and changes over time. Increasing and decreasing trends in retention rates were observed, and found to be related both to socio-economic and structural variables, and to stricter standard policies stemming from reform legislation of the late 1970s and early 1980s. Definite patterns of retention rate shift were found to result from the district's gradual restructuring of its grade configuration, from a junior high organization to that of a middle school model. Other effects appeared to be due to annual state performance testing practices and to other state education reform legislation intended to toughen graduation standards.

Introduction

Interest in grade retention has been increasing as a result of the reform efforts of the late 70s and early 80s, where emphasis on assuring competence in subject matter prior to graduation has increased retention rates all the way to the kindergarten level. There is a expanding body of literature amassing evidence on the effects of grade retention, in the wake of those reforms. Most recently, Shepard and Smith (1989) have published a collection of studies that report on its widespread practice, and enumerate growing indications of negative consequences.

The book is a valuable contribution to the research on the effects of retention on students, individually and collectively. At the same time, the book's broad scope reveals clearly that there is much yet to be learned about grade retention, with respect to basic patterns of structure and change. There is in fact little or nothing available on the subject from this perspective of which I am aware. This study looks at aggregate data on grade retention in a large southeastern school district, for all regular schools and selected subsets, for the period 1982 to 1989. Very generally, the purpose was to describe existing patterns and examine changes over time.

The paper draws on earlier work by the author which in turn drew on data from a number of American states to show that there are commonalities of pattern across the grades, over great disparities of circumstances, and across time. Against this knowledge of common pattern, variations arising from selected policies are examined to sort out the various effects on the numbers of students retained, in groups of schools and across several years.

In the present study, patterns of increase and decrease in retention rates were observed, and found to be related both to socio-economic and structural variables, and to policies of performance testing practices and recent reform legislation. The effects on retention of annual state performance testing at four grades were examined with the intent of estimating effects by comparison with the expected rates in the absence of the tests. The effects on retention of other state education reform legislation intended to toughen standards were also examined.

The Data

All data used in the analysis were published by the school district under study (the Dade County [Florida] Public Schools, or DCPS), and consist of counts and/or percents already aggregated to the building (school) level at the time of availability. [This data has been published annually since 1982 in the *District and School Profiles.*] Data for enrollment and retention percent by school permitted the extraction and recombination of rates for schools to produce the comparisons discussed here. Averages across groups of schools, and 3-year moving averages over school-years, are used throughout this analysis, to smooth out ephemeral school-to-school and year-to-year idiosyncrasies and emphasize the generalities. These averages will be referred to by noting the first and last year together with a hyphen. For example, 85-7 denotes the 3-year average of the school years 1985-6 through 1987-8.

Pattern and Change in Retention Rates: an Overview

A Model for Retention Rates

A General Retention Rate Pattern in the American States. In an earlier paper (Morris, 1990), I proposed a formal model to explain the pattern of retention rates across grades 1 to 12 that I had observed in data from a number of American states. In essence, a negative exponential (decay) model was found to fit the median rates of approximately a dozen states (all for which retention data were available for every grade) at two different points in time. Figure 1 shows the basic pattern produced by the equation (graph a) and the fit to the median retention rates of 12 American states by grade for the year 1979-80 (graph b).

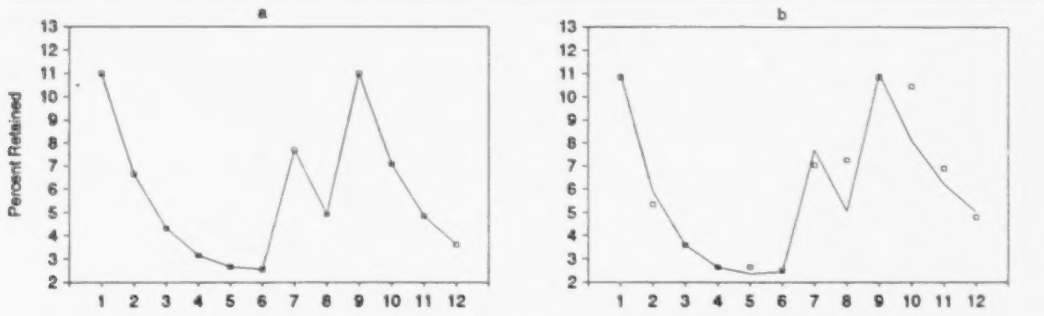

Figure 1 The exponential model of retention rates, as an ideal function (graph a), and as fitted to the median values of 12 American states (graph 1b). The "ideal" pattern shown in Figure 1a is expressed mathematically as $r=k+c(1-p)^x$, where r ("the r function") is the retention rate and x indicates time in period, in school-years. The k, c, and p are positive constants that represent the minimum rate, the initial rate (peak) less the minimum, and the inclination of the curve, respectively, and p never exceeds unity. The horizontal axis represents grades 1 through 12. The square symbols connected by the line mark the value of the function at that point. The square symbols in 1b represent the medians of 12 states for the year 1979-80; and the line represents the function as fitted to them. The graphs in this figure are reproduced from Morris (1990).

That model is a representation of two essential ideas. First, a pool or group of students at risk of academic failure would, upon entering an instructional level (elementary, middle or intermediate, senior), be retained at a constant rate at the end of each year of the level. As a result of this "selecting out," the number available for retention, and consequently the number retained, would

decrease exponentially throughout the level until all were retained or time in the level came to an end. The second idea was that the process was repeated at each major change in the school environment (ordinarily the level), with retention rates highest at the beginning of the change and dropping off exponentially.

The assumption driving the model is that the retentions result from characteristics of the entering students, as those who do not make the appropriate adjustments in the allotted time are identified and held back. District or school "policy" is subsumed in the rate at which students are identified and retained. In this early model, this "identification rate" was assumed to be constant at least across the level. Deviations from the pattern reflect changes in the school system (e.g. changes in structure, curriculum or instructional strategies, or externally administered testing policies) to be explained.

Generalities of Pattern in the DCPS Rates. The DCPS data was at the beginning of the 1980s very similar to this pattern. The rank order correlation (Spearman's rho, the state data was analyzed in rank form) between the 1979 year shown for the states, and the DCPS rate for the year 1981 (the earliest year for which data are available) is 0.78, quite a strong relationship.

In Figure 2 the DCPS retention pattern and its fit to the retention rate equation (r) is shown for comparison to the state graph shown above. The data used is the three year average for 1981 thru 1983 (abbreviated 81-3). A glance will show that the pattern is very similar to that of the states as shown above, and the fit to the ideal model also similar. The generalities of the pattern are what are important, and they are all as expected. The last year of each level has the lowest retention rate, and there are 3 outstanding peaks, marking the first year of the levels. Differences are that the second peak is much higher than for the states graph, and the third peak is shifted from 9th to 10th grade. In Dade nearly all of the high schools at that time were configured as 10th through 12th grade.

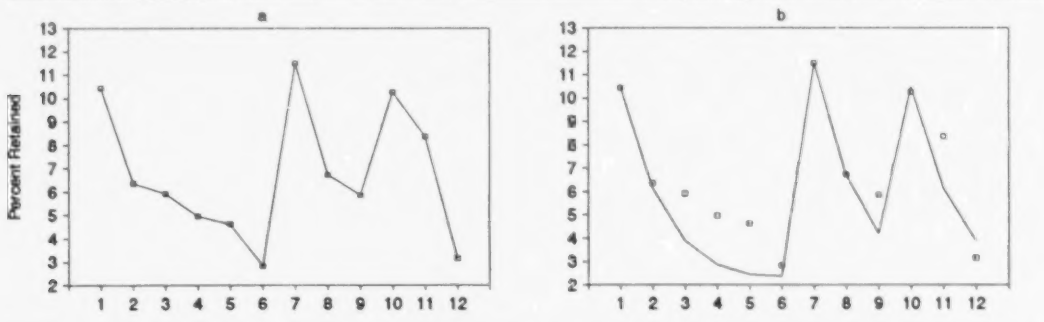

Figure 2 Retention rates for the Dade County Public Schools, averaged across the years 1981-82 through 1983-84. The horizontal axis represents the grades, and the square symbols in both represent the percent retained. In graph 2a the line connects the symbols. In 2b the line connects points for the r function as fitted to the data.

The fit to the function is not perfect, of course. In particular, the 3rd through 5th grades have higher retention rates than predicted by the function. Note also that the 6th, 9th, and 11th grades have higher than predicted rates. Accounting for these discrepancies is one purpose of this paper.

Changes Over Time

Retention Rate Change in the DCPS. Another purpose of the paper is to note and describe the changes in the DCPS retention rate over time. These changes in DCPS retention rates are quite pronounced, but they are concealed if one looks only at the overall figures. The average annual retention rate for the district as a whole, over the period 1982-3 to 1988-9 is 6.12 percent, with a standard deviation of 0.57. The regression line for a linear forecast produces a regression weight of b=0.04, not different from zero. In other words, at the district level no significant change in retention rates is observed over the time span.

The changes take the form of shifts in the rates over the grades. The average percent of the total annual retention rate attributed to the elementary level in the period 1982-4[1] was 43.4; by the period 1986-8 that had dropped to 37.5 percent. Even greater decreases are found for the middle school level, where the percent of the total annual retention rate dropped from 27.4 to 18.8 percent. In contrast, the retention rate for the senior level increased over the period from 29.1 to 43.7 percent.

In sum, substantial decreases at the lower grades were counterbalanced by increases in the senior grades. Figure 3 shows those results graphically, contrasting the 1982-4 period with the 1986-8 period.

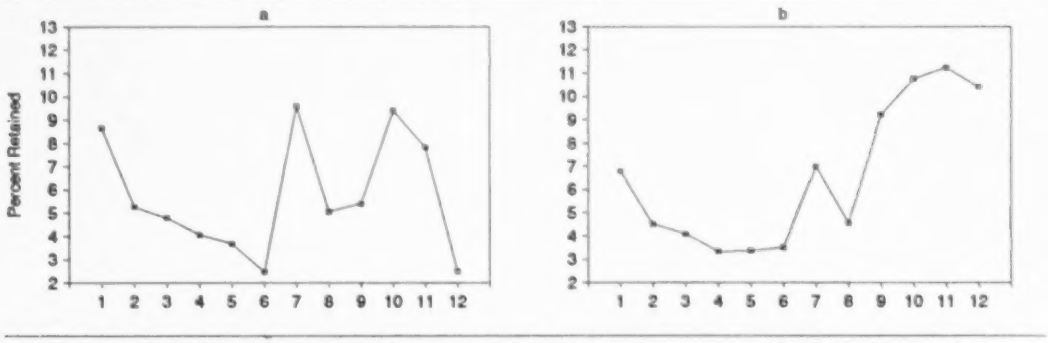

Figure 3 Retention rates for the Dade district at two different times. The grades are along the horizontal axis. Graph 3a represents the average retention rates for the 3-year period 1982-3 through 1984-5, and graph 3b represents the average rates for the period 1986-7 through 1988-9. The square symbols in each case represent the retention rate by grade, and the line simply connects the symbols.

Magnitude and Change by SES Groupings. Dade County is a large district (the fourth largest in the country), with 25 regular senior high schools, twice that number of middle schools, and nearly 200 elementary schools. Dade has large ethnic populations, and also large immigrant populations. Socio-economic status (SES) varies greatly among the families of students, and it should be no surprise that it is a good predictor of retention rates, as it is of other aspects of school performance.

One measure of the SES level of students enrolled and the one available for this analysis, is the percent of students at each school eligible to receive free or reduced price lunch (percent FRL). The number of students eligible for FRL fluctuated around the 40 percent figure throughout the period under analysis, for the district as a whole. That percent, however, was not evenly distributed, tending to concentrate in the inner city schools. By separating the schools into groups based on FRL, the differing rates of retention associated with SES characteristics can be observed.

In Figure 4, the schools are divided into thirds by percent FRL, and each level is shown separately over the time period. The lines marked by square symbols indicate the change through time of the high SES (i.e. low FRL) group of schools, the cross symbols label the medium SES (middle FRL) group, and the diamond symbols mark the low SES (high FRL) group.

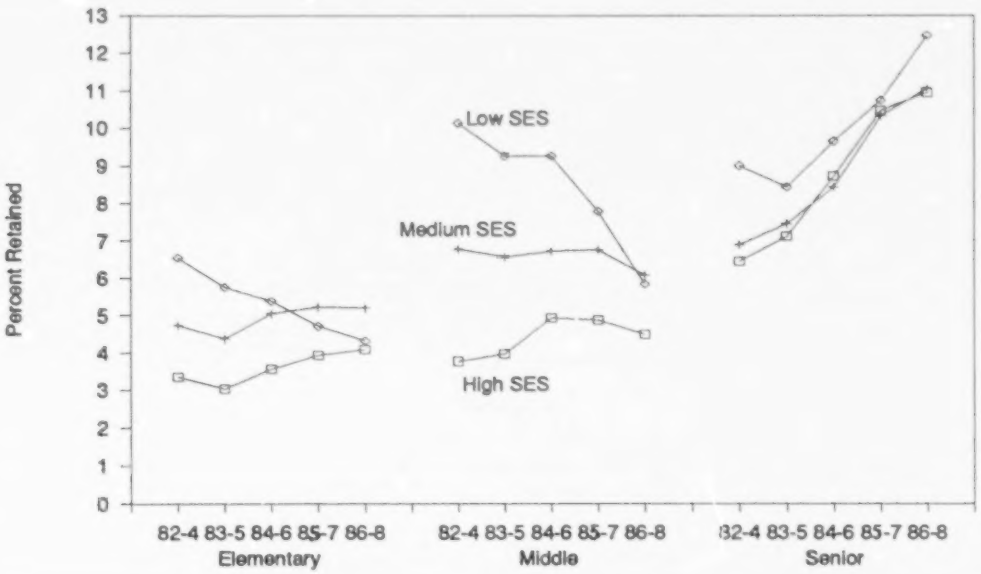

Figure 4 Retention rates for the Dade district over time, by SES grouping and organizational level. The levels are separated, with the elementary level on the left, the intermediate level in the center, and the senior level on the right. The horizontal axis is similarly divided, showing the time-span separately for each level. Each symbol represents a 3-year running average represented on the x-axis by a hyphenated number. E.g. 82-4 represents the average of the school-years 1982-3 through 1984-5. The SES groupings were created by dividing the regular schools at each level into 3 equal groups on the basis of the percent of students at each eligible for Free or Reduced-Price Lunch. As indicated on the graph, the square symbols represent the high SES group, the crosses the medium SES, and the diamonds the low.

The drop in retention rates at the elementary and middle school levels, and the increase at the senior level are clearly evident, and so is the pattern of the changes across the whole period.

As one would expect, the high SES schools tend to have the lowest retention rates, with the middle SES higher, and the low SES group highest. This is very pronounced at the beginning of the time span. Across the time span, and at every level, the low and middle SES groups tend to vary together, maintaining the initial relationships with respect to each other.

The low SES group, however, has a pattern unique to itself, at every level. All the decrease in retention rates at the elementary level, and most at the middle school level, is due to decreases in that group alone. Even at the senior level there is an initial tendency to decrease, a direction never taken by the other two groups at that level.

The decrease in the low SES group over time is quite pronounced, amounting to over four percentage points in the middle schools. At the elementary and middle school levels the low SES group rate actually drops below that of the middle SES group, and at the senior level, although it remains higher than the other two, the low SES group narrows the gap until the last period, when it diverges again.

Finally, one of the striking features of the graph in the large and steady increase in retention rates at the senior high level, for all three groups.

The Positioning of the Peak Magnitudes

Dade County, over the past decade, has been undergoing a change in the configuration of the levels of its system, from a junior high organization of grades to a middle school arrangement. While both middle school and junior high are variously defined, there as elsewhere, a sizable portion of this growing number of the middle schools have the makeup of grades 6 through 8, while the diminishing junior highs are very largely 7th through 9th.[2]

Specifically, the number of middle schools of this particular makeup increased from 7 percent of the total number of regular schools at the middle/junior high level in 1982-83 to 31 percent in 1988-89. The number of elementary schools made up of grades 1 through 5 increased from 10 percent to 26 percent. The number of senior high schools with a 9th grade went from 29 percent to 58 percent.

Meanwhile, the number of junior high schools (with grades 7 - 9) decreased from 76 percent to 48 percent of the total middle level regular schools, the number of senior highs without 9th grades decreased from 71 percent to 42 percent, and the number of elementary schools with grades 1 - 6 decreased from 74 percent to 58 percent.

Table 1 gives the percent retained for the 6th and 9th grades for both configurations over the entire period. The salient point here has to do with the level at which the these grades are placed, and the subsequent effect on the distribution of retention rate magnitudes. It was suggested above that retention rates tended to increase disproportionately at points of major change in the school environment, and that the most obvious place for this was at the change in level. In this middle school configuration the 6th and 9th grades become the first grade of a level, where they had not been in the junior high configuration. Table 1 clearly shows that the retention rates in both grades were considerably higher in the middle school context.

Table 1
Percent of Students Retained in 6th and 9th Grades
Middle School and Junior High Configurations Compared
Dade County School District, 1982-1988

Three-Year Averages	Sixth Grade		Ninth Grade	
	Jr High	Middle	Jr High	Middle
1982-3 thru 1984-5	2.38	7.45	4.15	11.50
1983-4 thru 1985-6	1.95	7.68	3.45	12.22
1984-5 thru 1986-7	1.97	8.49	3.54	12.93
1985-6 thru 1987-8	2.36	7.29	3.40	14.18
1986-7 thru 1988-9	2.76	5.51	3.87	14.84

The table also reflects the "trends" for each grade at each level. The grades in the junior high configuration in each case (elementary 6th and middle 9th) show no particular trend in rates over time, and take their place as the grade with the lowest retention rate in the level, as expected of the last grade in the level. In the middle school configuration, the middle 6th, after a climb, mimics the trend of the 7th, decreasing after 1984-6 (see also Figure 6, below).

Likewise, the senior 9th behaves like the other senior level grades, steadily increasing over time. The point is that each grade takes on the retention rate characteristics predicted of it for the level in which it is found, in the way its rate changes as well as in relative magnitude.

Figure 5 shows these "configuration effects" graphically, broken down by grade for the highest and lowest SES groupings. In that figure, the grades are shown changing from one time period to the next. From the elementary level to the middle school level, the 6th grade is up; the increase for the high SES group is modest, but decidedly present. For the low SES group, the difference is quite large, a gap of more than 4 percentage points. In both cases, the 6th grade magnitudes at the middle level remain well below those of the 7th, where the secondary curriculum begins in earnest. However, this difference becomes progressively smaller over time for the low SES group. The difference in rates between middle 9th and senior level 9th grade is very large, and is approximately the same for both groups; the differences are on the order of 5 to 10 percentage points or more, and are shown to increase over time.[3]

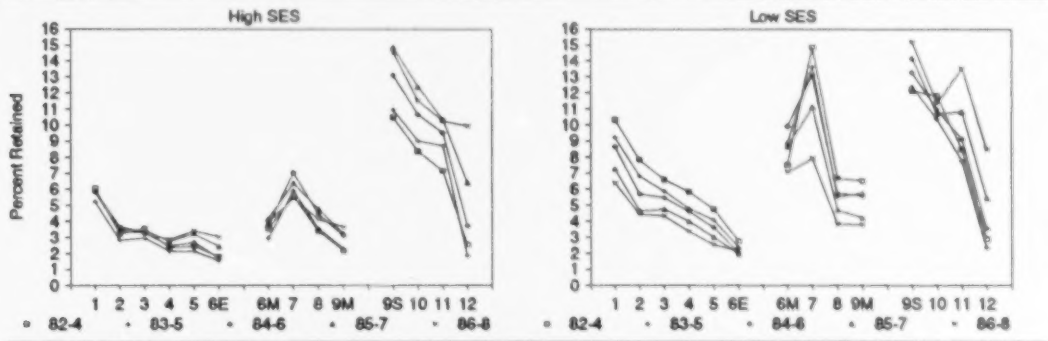

Figure 5 Retention rates for the Dade district by grade and SES grouping, separated by level and distinguished by time period. The graph on the left shows the high SES grouping and the right hand graph shows the low SES group, both composed as described in Figure 4; the medium SES group is omitted. Each line and symbol set represents a 3-year average across the level, as noted in the legend. E.g. 82-4 represents the average of the school-years 1982-3 through 1984-5. The x-axis represents the grades, with the 6th and 9th grades computed separately by level. I.e. 6E refers to 6th grade at the elementary level, 6M is 6th at the middle level. Similarly for the 9th grade.

In addition to increases in the 6th and 9th grades as they become the first grade in a level, the reasoning behind the formal model also predicts the decline in the former first grades of the affected levels, the 7th and 10th.

This effect can be observed in Figure 5. Unlike the graphed rates for the 6th and 9th grades, which have been separated by configuration for display, so that changes in these grades do not reflect the configuration change over time,[4] the rates shown for the 7th and 10th grades are averages across all schools in the SES group. As such, they should show progressive change over time as a result of greater percentages of schools being subtracted from the junior high configuration and added to the middle school configuration. Specifically, these averaged 7th and 10th grade rates should decline over time, and this should be observable in the lower SES group where most of the middle schools are concentrated, despite the fact that there are also other factors at work. Conversely, there should be no observable effect in the high SES group where the number of schools configured as middle schools is negligible.

The high SES group's 7th grade rates show a movement of approximately a percentage point, but in no particular direction over time. The 10th grade moves upward along with the 9th grade rate, both

responding equally to the same upward pressures in the same way. This is what is expected, as if both were responding as grades in the same position (i.e. as the first grade of the level), and this is in effect the case.

The 7th grade in the low SES group, in contrast to the high SES group 7th, is seen decreasing very rapidly and monotonically, to the point that at the end of the time period it seems likely that the middle 6th grade will overtake it as the grade with the highest retention rate in the level. While the decrease is what was predicted, there are reasons why the magnitude of this result should be viewed with caution. For one thing, the 6th grade has consistently shown a smaller retention rate than the 7th, indicating that the position of 7th as first "real" grade of the secondary curriculum is as strong or stronger as an adjustment problem for students as the middle 6th, even when second in the sequence. For another, the dominant trend in both the elementary and middle levels is for the decrease in retention rates. Thus the 7th grade's new status as the level's second grade no doubt contributes to the observed decrease, perhaps as its major factor, but the magnitude of the decrease, and its acceleration from one time period to the next, strongly suggests that there are other forces working in the same direction.

At the senior level in the low SES group, the 9th grade dominates as the first grade. The absolute movement of the 10th grade is downward initially (a little more than a percentage point in range) and then upward slightly. The downward movement of the 10th grade is not of the degree expected, of course, and it is reasonable to conclude that there is an upward pressure on the 10th grade rate that is impeding its downward progress. It is also reasonable to conclude that it is the same pressure that is pushing up the 10th grade rate visibly in the high SES group where there is no appreciable downward pressure to counter it. Thus the model, in predicting the downward movement of the rate, also gives some indication of the magnitude and strength of the counter pressure upward. This counter pressure is presumably due to a combination of mimimum testing results and the introduction of graduation requirements, discussed below.

State Performance Testing and Minimum Standards: the SSAT-I

Legislation beginning in 1971 and culminating in 1976 established and evolved a statewide testing program that resulted in a series of "promotional gates" at the third, fifth, eighth, and eleventh (later tenth) grades. This was the State Student Assessment Test Part I (SSAT-I), which tested students for minimum achievement in reading, writing and mathematics. (Center, vol. I) This testing was annual from 1977 to 1990.

The Accountablilty Act of 1976 also established a Minimum Student Performance Standards Program, in which results from the SSAT-I were used to determine which schools had deficiencies in their basic skills programs. Thus the testing program was made to do double duty, identifying students who were in need of remediation, and assessing the programs (and so the schools) where the responsibility lay for teaching these students.

Promotional Gates

The SSAT-I (below senior high) was given in October, and the students who scored below the minimum on specific competencies were individually identified. Teachers were then given responsibility for insuring that those students achieved mastery. There was no retest, the teacher

defined mastery, but he/she had specifically to indicate which students in his/her charge had done so, name by name.

Thus the SSAT-I resulted in the identification of more students with academic weaknesses than would otherwise have been recognized, resulting in more retentions in the test year. It also, since it identified students who would have gone undetected, increased the number of retainees among students who were not on anybody's at-risk list. This effect is therefore most likely to show up in the high SES group of schools.

An inspection of Figure 5 shows that this is precisely the case. For the high SES group, where the retention rates are low, small peaks occur at grades 3 and 5. The low SES group does not show this effect, although the 3rd grade peak does become evident over time as the overall retention rate drops.

Unfortunately, there is no comparable "surrounding context" within which to analyze the SSAT effect at 8th grade. It is worth noting, however, that for the low SES group the 8th grade retention rates are much lower with respect to the 7th grade rates than is the case for the high SES group. I will return to this point below.

In the 10th grade, the SSAT-I was given in the Spring, giving teachers no time to remediate weaknesses exposed by the test. It is not clear what effect this had on retention rates. One would expect a tendency for retentions to increase, but not to the extent that is observed in the high SES group, nor with the strength that is shown in the resistance of the 10th to expected decline in the low SES group. (See the discussion concerning effects of changes in grade configuration, above.) Most likely, the SSAT-I effect in 10th grade retention was to abet the more general graduation requirement pressures at that grade.

The Minimum Student Performance Standards Program (MSPSP)

The MSPSP, referred to above, for which the SSAT-I served as the instrument of measure, was described by the Florida Department of Education (FDOE) as follows:

> The composite student performance for a school's reading, writing or mathematics program is the average percentage of students achieving each standard within the program as measured through statewide assessment. A composite student performance of less than 80% (70% prior to 1984) will result in a program being identified as deficient. (FDOE, p. iv)

There were no fiscal or other penalties for a school which had a program identified as deficient, but the results were made public, every fall. The SSAT-I at 10th grade, given in March, was reported by June. This notoriety was itself a kind of penalty, because it got the principal a lot of phone calls, unhappy parents, and reportedly a lot of heat from downtown. Principals were allegedly under considerable pressure to "get the scores up," particularly at the 8th and 10th grades, where the tests were more difficult.

For these reasons it was in the principal's interest to identify students earlier. If a function of the SSAT is to identify academically weak students for retention and remediation, then it makes sense to anticipate this result by finding and retaining these weak students ahead of time (i.e. the year before). Presumably the student is helped by the earlier attention and an additional year's preparation, and the school is helped by increasing the number of students who will achieve or exceed the minimum on the following year's SSAT.[5]

To the extent that this occurred, it would be applied to students already known to be weak in the basic skills, and served as an additional incentive to retain, raising the retention rate in the year prior to testing. Thus this should show up most in the low SES schools, in the 2nd and 4th grades in elementary schools, the 7th in middle. The possibility exists that it affected rates even in the first grade of a level (i.e. first, middle sixth, and senior ninth).

Consider first the elementary grades, as shown in Figure 5. There should be higher than expected retention rates in the 2nd and 4th elementary grades, and these should be large enough to observe in the low SES schools. For the second grade this is somewhat difficult to ascertain, because the 2nd grade retention rate is "normally" high with respect to the ensuing grades, and so the small added percentage due to this "anticipation" effect is harder to detect, even in high risk schools. Even so, the drop from first to second is clearly foreshortened if one compares the low SES graph in Figure 5 to the version of the model given in Figure 1a.

For the 4th grade, the job is easier. Not only is the normally expected percent retained small, the 4th is between the two test years where additional retentions due to the SSAT-I are expected, and where evidence that they occur is found (in the high SES schools, see above). Retentions in this fourth grade should therefore be much below the two adjacent year "minipeaks" if there is no "anticipation" effect, and should be roughly the same across the SES groupings. This was not found to be the case. Instead, the 4th grade retentions are much higher than would be predicted from the formal model curve alone, even in the high SES group. In the low SES group, the 4th blends with the 3rd and 5th to form a smooth "hump" of high retentions that falls off sharply at the 6th, where there is little incentive to retain anyone.

It was noted earlier that the 7th grade retention rate in Dade County was exceptionally high throughout the period under analysis, as compared with other systems. The data from the American states, at two different years, indicate that the middle level peak is about half to three-quarters the size of either the first grade or senior high peak (Morris, 1990). The Dade middle peak was for most of this period larger than either of the other two.

There are many things contributing to the 7th grade retention rate: the fact that it is the first year of the full secondary curriculum, and also for most intermediate level schools also still the first grade of the level. There is also the alleged problem (no one seems to know its magnitude) of students who would ordinarily have been retained the previous year (in elementary 6th) but who are "pushed on" to the next level because this is an expedient solution for dealing with very difficult students. Presumably they will add to the 7th's retention rate.

In addition to these things, it is reasonable to expect an "anticipation effect" here as well as in the lower grades. In fact, it should be greater than for earlier tests. The 8th grade test was for one thing the most difficult of the SSAT-I instruments. I have been told on more than one occasion that the 8th grade SSAT was an important "gate," and that middle school principals were under some pressure to "make a good showing on it."[6]

It seems likely that this pressure has been a factor in contributing to the 7th grade rate.[7] The fact that the 8th grade retention rate for the low SES group is so much lower than the (exceptionally high) 7th grade rate, as noted above, seems to suggest a considerable degree of "anticipatory retention," where students who would have been "caught by the test" in 8th have been retained in 7th instead.

At the 10th grade also, principals are reported to be under considerable pressure to avoid the deficiency label. Thus anticipative or preemptive retention almost certainly occurs in the prior year, if a previous grade exists at the senior level. However, like the 7th, the positioning of the senior 9th is such that it has the highest retention rate of its level (in this case, the highest of all grades), so it is impossible to judge how much of an effect "anticipative retention" may have had.

Reform and Change

Trends at the Elementary/Middle School Levels

As noted earlier, the retention rates in the elementary and middle levels dropped over the time span under consideration. The downward trends can be observed both in the SES groupings (Figure 4), and in the grades. To summarize briefly, the trends in retention rate change at the elementary and middle levels were as follows.

Figure 6 shows the changes over the time span by grade, for each level separately. The retention rate decreases are observed to be most pronounced in the 1st, middle 6th, and 7th (Figure 6). Whereas it was noted in the discussion of Figure 4 that virtually all of the reduction in retention rates occurred in the low SES group, this figure indicates further that most of the decline took place in the first grades of the two levels.

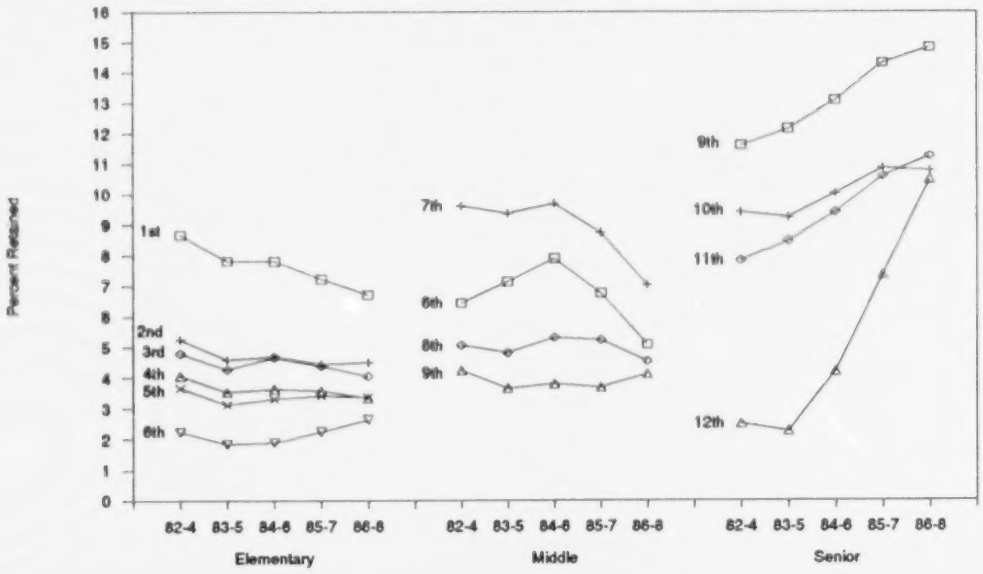

Figure 6 Retention rates for the Dade district over time, by grade and level. The levels are separated, with the elementary level on the left, the intermediate level in the center, and the senior level on the right. The horizontal axis is similarly divided, showing the time-span separately for each level. Each symbol represents a 3-year running average represented on the x-axis by a hyphenated number. E.g. 82-4 represents the average of the school-years 1982-3 through 1984-5. There are two separate computations for 6th grade, one for those at the elementary level, and one for those at the middle level. The 9th grade is similarly computed for the middle and senior levels.

The greatest decrease was observed at the middle level. That decrease was due mostly to a decrease in 7th grade, which was unusually high to begin (as compared to the general pattern). The 6th grade decrease was also substantial, but involved far fewer students.

With respect to SES, the decrease in retention rates was found to be due almost entirely to a decrease in the third of schools with the lowest SES (highest FRL percent), a phenomenon that may be observed in Figure 4. Low SES was already declining from 82-4 to 83-5. It "paused" in 84-6, then made major declines.

The high SES and medium SES groups showed abrupt increases at the middle (high SES only) and elementary levels. Subsequently both increased slightly at the elementary level and decreased slightly at the middle level. Through the whole period, schools in these groupings continued to identify and retain as many or more students as at the start.

Applying the SSAT-I

Within the context of the MSPSP, high retention rates (especially at the elementary and middle levels), are one more indication of the number of students deficient in basic skills, and therefore indicative also of deficient school programs. There was, then, an interest in finding ways to decrease those rates. In this sense, much, if not all, of the decrease in retention rates at the elementary and middle levels can be attributed to the SSAT-I program.

The SSAT-I and Decreasing Retention Rates. Data published by the Florida Department of Education indicate just how quickly the states's 68 districts met the challenge of avoiding having their programs found deficient, following the passing of the legislation in 1976. The percent of deficient programs identified as a result of the 1977 statewide testing (i.e. schools with less than a 70 percent average of students achieving each standard) was 17.7 percent. The following year the percentage dropped to less than a third that number (5.2 percent), and within four years the percent of programs found deficient was under one percent. (FDOE, p. iv)

This success was followed, at least in Dade County, after a lag by the decreases in retention rates noted above. It is tempting to attribute the decreases at the elementary and middle levels to successful remediation programs and practices. No doubt there were many effective remediation efforts, but a number of possible explanations for this rapid mastery of the situation come to mind. Several techniques are possible, and all were employed at some time or place. These are (in the probable order of their introduction):

- Developing test-taking skills. One elementary school principal I talked to claimed to have raised the (low SES) school's SSAT-I average by a large percentage in the early days of the MSPSP by simply having drills in "bubbling" the answer sheets, without reference to any test.

- Practicing the test. Practice materials were created at DCPS and distributed to the schools. The items were constructed under the same specifications and tested the same skills as did the SSAT-I. The state had no objection to the use of these materials; similar materials were available from state sources. In fact, for the (state funded) compensatory education program, where entry was contingent on SSAT performance, such "test practicing" activities were required.

- Anticipatory retention and reclassification. Early or anticipatory retention has been inferred (in this paper) from the retention rate record. The graphical indications from which this inference was

made seem to have increasingly given way as time progressed (see Figure 5b). There was for one thing a growing kindergarten retention rate, not considered in this analysis.

For another, there was an expanding number of Exceptional Student Centers, located in schools which had 9 or more exceptional student classes. Overage exceptional students can be and are classified as being in grades more in congruence with their age than with the level at which they are being taught. It is not uncommon for example, to have students in middle school centers classified as 10th or 11th graders, avoiding counting them as retained (and incidentally as SSAT-I takers). The number of students involved is small, of course, compared to the enrollment. (Some five percent of the district's students are classified as exceptional.)

The number of these Centers grew from 20 in 1982-83 to 37 in 1987-88, the last year that the total count was reported in the *Profiles*. Of particular interest is the fact that more than half of this growth (a jump from 21 to 30 centers) occurred in 1984-85 (see below).

• Effective remediation. There are finally, as mentioned above, the many efforts to remediate students who showed academic weaknesses, thanks to the testing program. I have heard more than one elementary principal remark that, although they disliked the practice of publishing the SSAT-I results, they found the information it provided useful in identifying and redressing weaknesses in their program, "as far back as the first grade."

In addition, there was a large number of special programs begun in the district to serve the at-risk student at the elementary and middle school levels in the early and mid-80s, and these programs were concentrated in the schools with the highest FRL percentages. (See Morris, 1989)

How much of the decrease in retention rates is the result of genuine remediation efforts cannot be known from the data presented here. It should be noted that all of the abovementioned efforts apply in the main to the low SES student, and it is in the schools where such students are concentrated that the declines in retention rates occurred.

The End of the SSAT-I. There is one peculiarity in the pattern of the retention rate decrease that has yet to be mentioned. It dropped for the low SES group, most sharply, beginning in the 1984-6 period. At the same time, there was an abrupt increase in retention rates for the high and (at the elementary level only) the middle SES groups. This no doubt reflects the increase in the required passing composite score for the MSPSP (by which programs are identified as deficient) from 70 percent to 80 percent in 1984, and the basing of the 3rd, 5th, and 8th grade tests on a new set of standards and skills in 1985. Both measures resulted in increases in the number of programs (schools) found deficient. In the schools that had no need for extraordinary measures to avoid the deficiency label (i.e. the high and medium SES schools), the retention rates simply went up. For the low SES schools, this no doubt meant redoubled efforts.

For the MSPS Program, this may have meant a last effort to force an acceptable outcome. The purpose of the MSPSP, and of the legislation that created it, was to improve the academic performance of students. But while retention rates dropped, the students were not showing improvements in achievement. In fact, there was no noticeable change in the achievement (Stanford Achievement Test) scores for the district, no detectable trend at any grade throughout the time span examined. (See the DCPS *District and School Profiles*, 1982-83 through 1988-89). The increase in the required passing composite score from 70 percent to 80 percent in 1984, and the new standards and skills introduced the following year, made no discernible impact.

I am not familiar with the experiences of the other Florida districts. In any event, in 1990 the SSAT-I, and the MSPS Program built upon it, were discontinued by the state.

Stricter Standards for Graduation: the SSAT-II and Beyond

At about the same time that the composite score requirements for the SSAT-I were being raised to 80 percent, events occurred that shifted attention to the senior level. These were court actions and new legislation.

In their comprehensive look at the practice of retention, Shepard and Smith (1989, pp. 2-3) put the priorities for the stricter standards movement of the early eighties this way: "Beginning in the late 1970s, nineteen states enacted legislation requiring that students pass a minimum competence examination before being awarded a diploma." However, opposition and litigation delayed these efforts, so that "What began as an attempt to enforce standards at the exit from public education was translated downward into 'promotional gates' at earlier grade levels."

The Florida experience fits this description very well. The 1976 legislation which established the SSAT-I also intended to make graduation contingent upon passing a test for minimum standards, the State Student Achievement Test Part II (SSAT-II). This instrument tested 11th (later 10th) graders on communications and math skills, but this was challenged in court. As a result, "Use of the SSAT-II as a graduation criteria [*sic*] was delayed from 1978 until 1983, because of the *Debra P. v. Turlington* court case." (Center, vol. I, p. 55)

In addition, there were two major educational bills passed by the Florida Legislature in 1983 that are of interest: the Raise Achievement in Secondary Education Act and the Educational Reform Act, called the "RAISE and Reform" legislation. Two aspects of this multi-featured legislation are pertinent here. It imposed minimum course requirements for graduation, and it provided for the lengthening of the school day to include seven periods.

After 1983, these three elements converged for the purpose of increasing the academic skills of students graduating from the Dade County schools.

The SSAT-II. The litigation involving the SSAT-II "was settled in 1983, establishing that the graduation requirements for students receiving Florida High School diplomas would become effective for the 1985-86 school year....The first full scale administration of the SSAT-II to take place subsequent to the court ruling was the spring 1984 administration for the Class of 1986." (Center, Vol. I, pp. 1, 55)

The SSAT-II (which yields a specific individual score) acts as an early warning by identifying students who need remediation, and the problem is addressed by retaking the test successively. A student can take the SSAT-II as many as 3 times a year after 10th until he/she passes it.

Course Requirements. Florida had no statewide graduation requirements prior to the legislation passed in 1983. (Firestone, et al, p. 18) The legislative objective was that "Beginning in school years 1984-85 and 1985-86, students in grades 9-12 were to have attained 22 credits for graduation. Further upgrading of graduation requirements in the 1986-87 school year mandated 24 credits." (Center, vol. II, p. 138)

The compliance of DCPS to this requirement is described this way: "The district currently [1988] requires 26 credits for graduation in the 1988-89 school year and has proposed increasing that to 27 in 1989-90 and 28 in 1990-91. This district's philosophy is to make every class attended count toward graduation." (Ibid, p. 138)

The Seven Period Day. On the extended day/number of periods requirement, the state's objective was implementation in the 1983-84 school year. It was reported of Dade that "The seven period day was fully implemented in grades 9-12 in the 1987-88 school year." (Ibid, p. 139)

Thus, after 1983, the academically weak student had increasingly to contend with a full day of required classes, making up failures and studying to retake the SSAT-II before and/or after school and over the summers. As of 1988, it was reported that "Repeating a course has to be done outside the regular school day because the seven period day is already full with required courses." (Ibid, p. 139)

Increases in the Senior Level Rates. Given the weight of these requirements, it is hardly surprising that retention rates at the senior level increased throughout the period under study. Figure 6 shows the pattern of change over the time period for each level, grade by grade. Looking at the senior level, the trend for every grade is steadily upward. The (senior) 9th and 11th grades have nearly the same rate of increase, roughly a percentage point per time period. The 10th, which shows a flatter trend, also reflects the downward influence of the configuration change, where it is increasingly becoming the second grade of the level. In the high SES group, where there is little such influence, the 10th grade retention rate increase over time parallels that of the 9th (see the discussion accompanying the introduction of Figure 5).

The 11th and 12th grades are of particular interest in this context. As graduation draws near, increasing numbers of students appear to be "caught short," their graduation delayed. This is particularly evident at the 12th grade, where the increase is on the order of 2 - 3 percentage points a year. However, a glance back to Figure 5 shows that for the low SES group, the greatest increases came at the 11th.

Over all grades, and for high as well as low SES schools, the new emphasis on secondary reform seems to have contributed substantially to the progressive increase in senior high retention rates.

Somewhat surprisingly, the magnitude and rate of increase (slope) in rates for the low-SES group at the senior level are not appreciably greater than those for the medium-SES and high-SES groups (see Figure 4). A large part of the reason is likely to be that a great portion of those that would be retained drop out, leaving the remaining student body much more similar in academic performance to the other SES groupings.

Discussion

On the Persistence of Pattern

It can be and has been argued that some minimum retention rate is "normal" for any mass education system. There are simply some students who need more time, and who can benefit from it. Normal or not, it is unlikely that any school district is to be found without this "mimimum retention rate."

Moreover, that minimum surely varies with the environment from which the students come. In developing the idea of a formal model for retention rates some time ago, I was struck by the "fit" to the state data, by the way the pattern could be detected in large states and small, in urban states and rural, even in a state (Hawaii) with a completely different cultural background.

There are retention patterns that occur as a consequence of socio-economic factors (a well known phenomenon), and of the problems of adjustment to a different learning environment, as in the move to the next organizational level. These changes are the substance of the pattern produced by the model. Not surprisingly, it was found here that the lower the SES (i.e. the higher the Free/Reduced Lunch percent) of a school's student body, the higher the retention rates were found to be. However, the low SES retention rate is predicted by the model to be like the high SES rate in pattern, simply greater in magnitude. Both are determined by external factors, and should be subject to the same "identify and retain" procedure that obeys a reasonably regular identification rate. That rate in turn is a function of the size of the at-risk percentage of the student body, and the school or district's "policy" for finding and retaining. This basic underlying pattern is permanent.

The "middle school effect" found to result from moving 6th and 9th grades up to the next level, is just the response to the moving of the level boundaries. The changes associated with the configuration change, in addition to representing increases in rates, occurred (for any given school) only once, and affected only one grade. These changes in relative magnitude are permanent. Once moved, a grade's retention rate does not "settle down" to its former rate at the previous level. The district under study is in the process of changing from a junior high to a middle school configuration, and this pattern shift was strengthened over the time period as more 6th and 9th grades were moved to the next level. In the process, the collective "retention curve" for the district is being permanently shifted.

With the exception of a) the retention rate peaks resulting from abrupt changes in the school environment, and b) the tendency of retention rates to drop across the grades as the at-risk pool is depleted, all else is temporary, existing only as long as the external pressures are maintained. Nothing in the data seems to contradict this assumption, apparent discrepancies being accounted for by external causes. The ephemeral changes remaining are maintained by the annual testing program and/or graduation requirements. The deviations from the theoretical pattern at the elementary and middle levels, excepting the increases in 6th grade rates due to the configuration change, appear to have been due to the SSAT-I testing, either directly or indirectly. The SSAT-I was administered, and the "incentives" structured such that it resulted in a variety of actions being taken aimed at the high-risk student population. Discrepancies at the senior level are attributed to the various stratagems intended to boost graduation requirements.

Retention Rates and Policy

In examining the data from the American states, I was also struck by the variety of adaptations or deviations (depending upon one's perspective) from one state and/or year to another.[8] These differences no doubt reflect the different ways in which the states approached the educational problems that faced them. One state (Arizona) had a very high 12th grade retention rate, similar to the one the DCPS developed. There were also indications, which I remarked upon at the time, of a general shift among the states away from a junior high configuration to a middle school configuration, a trend supported by national data.

The Dade County data that I have briefly described here give insight into that variety of differences that occur in different systems, and in the same systems over time. In particular, it is astonishing how easily and quickly even large deviations are introduced. Consider the following:

- Move a grade from one level to the next, and the retention rate for that grade immediately increases. Sometimes it triples.

- Introduce a diagnostic test to identify failing students so that they can be helped, and retention rates immediately increase in the test years.

- Use the same diagnostic test to identify weak school programs for improvement, and the increases in retention rates immediately tend to spread to other grades.

- Try to structure incentives for the reduction of the number of deficient programs, or of retention rates, and ways are immediately found to do so that have little to do with the purpose (improvements in academic achievement) for doing so.

- Increase the requirements for graduation, and simultaneously restrain or decrease the amount of time to achieve them, and the retention rates immediately increase.

Variations in retention rates are among those unwanted consequences of well-meaning reforms that - at least according to some - can do a lot of harm. (Shepard and Smith, 1989) Consequences of policy shifts and reforms show up very quickly in easy-to-implement, negative actions such as retention rates, and to my knowledge, such side effects are rarely taken into account.

Consequences are often unexpected as well. For example, in none of the middle school literature of which I am aware is there a warning or indication that the switch to a middle school configuration carries a problem of retention shift with it. The implications of this effect are completely unexplored.

The fact that negative consequences follow very quickly upon policy action might perhaps be acceptable as a part of the price of the intended outcomes. However, successful consequences (e.g. successful remediation) follow more slowly, if at all. The moral of the story is, beware of the unplanned and unanticipated consequences of policies. The speed with which negative consequences come along, coupled with the unexpectedness, and the various "ingenious solutions" (e.g. anticipative retentions), urge caution in reform (any reform) because they tend to interfere with or circumvent positive results. In education, there is much to be said for the view that gradual approaches to large changes are to be preferred over grand assaults on poorly understood problems, where the possible consequences cannot be anticipated.

Notes

1. The retention rates for the 1981 year are not available below the district level, and so the analysis is begun at the 1982 year.

2. The district was moving toward a middle school grade configuration throughout the time period under analysis, in the sense of changing the grade configurations of the intermediate schools, and that is what is examined here. However, a systematic transformation of the schools designated as middle schools in the sense of changing curriculum and internal organization was not formally begun until 1988-89. The district formally began the process of adopting the middle school model in 1986, when the School Board voted to establish K through 5, 6 through 8, and 9 through 12 as the preferred grade level configurations for the district. The target year for the full implementation of the middle school model was set as 1991-2.

3. Since 1986, all intermediate level schools in the district have been called "middle schools," regardless of grade configuration; thus the reference to "middle 9th," above. This terminology will be used henceforth, for reasons of consistency.

4. This same movement in reverse can of course be observed for the 6th and 9th grades, when they are combined across the levels. They increase over time. Compare Figures 2a, 3a, and 3b.

5. The SSAT-I was a minimum performance test of basic skills, and at the lower grades reported to be an easy one. There was no adjustment made for over-age test takers. Maturation itself may in some cases make a difference in the score, whether there has been any formal remediation or not. Therefore, retention alone would seem to have achieved some of the result desired.

6. As a consequence of these alleged pressures, there are rumors to the effect that there was some incentive to retain 7th graders with poor performance records (i.e. at-risk students) only until after the October testing, and "promote them around the test" at mid-year. Otherwise, many of these same students would be around to fail it the following year. I know of no existing records to confirm any such practice, and it seems unlikely that it could have been widespread.

7. Anticipation of the 8th grade testing probably also affected the retention rate in middle 6th grade, as principals looked ahead to possible test performance. This would also help explain the closely related drop in middle 6th along with 7th (discussed below).

8. In the 1990 paper cited in the references, I provided graphs of the retention rates by grade, for each of the 15 states for which I had full or partial data, one for each of two years, 1979-80 and 1985-86. Not only is the general pattern visible - about which the paper was written - but the great variety of differences from state to state are also there to be observed. The changes over the 5 year period are likewise worth inspection.

References

Center for Needs Assessment and Planning. September 29, 1989. *Evaluation of Components of the RAISE and Reform Legislation.* Four volumes. Tallahassee: Florida State University.

Dade County Public Schools. 1982 - 1988. *District and School Profiles.* Miami, FL: author.

Firestone, W., Fuhrman, S., and Kirst, M. October, 1989. *The Progress of Reform: An Appraisal of State Education Initiatives.* Center for Policy Research in Education Research Report Series RR-014. New Brunswick, N.J.: Rutgers.

Florida Department of Education. n.d. *Student Achievement in Florida 1977-1984-1985: A Comparative Analysis of Attainment of Minimum Performance Standards by School-School District-Region.* Tallahassee, Fl.:Author.

Morris, D. July, 1989. *Overview of the 1987-88 Dade County Dropout Prevention Program.* Miami, Florida: Dade County Public Schools.

Morris, D. November, 1990. Comparative Aggregate Patterns of Grade Retention Rates. Paper presented at the Florida Educational Reseach Association Conference, Deerfield Beach, Florida.

Shepard, L., and Smith, M., eds. 1989. *Flunking Grades: Research and Policies on Retention.* New York: The Falmer Press.